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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,408	11/07/2005	Yukio Shirokura	Q87477	7170

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
THEODORE, MAGALI P	

ART UNIT	PAPER NUMBER
1791	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,408	SHIROKURA ET AL.	
	Examiner	Art Unit	
	Magali P. Théodore	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *10 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :5/11/2005, 8/11/2005, 3/13/2007, 4/4/2008, 6/10/2008.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 11 is rejected under 35 U.S.C. 102(b) as anticipated by Park et al. (US 2002/0041043 A1), henceforth Park.

Park teaches an apparatus (fig 3-6) for fabricating a polymer hollow tube for an optical component (¶ 2 ln 3, last 3 lines), comprising a manufacturing line for melt extrusion molding (fig 2).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-4 and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ilvashenko (US 6,086,999)in view of Nakahara et al. (US 4,123,483), henceforth Nakahara.

Regarding claim 1, Ilvashenko teaches a method of manufacturing a preform for producing a plastic optical component comprising a graded-index core portion and a cladding portion in which the refractive index of the core portion continuously decreases from its center to the outer radius (col 1 ln 28-33) comprising a first step of fabricating a polymer hollow tube (col 2 ln 18-19) for the cladding portion and a second step of polymerizing a polymerizable composition in the hollow portion of the hollow tube to thereby form the core portion (col 2 ln 23-27).

Ilvashenko does not specify that the refractive index of the cladding portion is smaller than that of the center of the core portion by 0.03 or more. However, Ilvashenko establishes the difference in refractive indices as a result effective parameter by teaching that that value determines how well the optical material conducts light (col 7 ln 24-25). Therefore it would have been obvious to one of ordinary skill in the art to optimize the difference in the refractive indices in the method disclosed by Ilvashenko because Ilvashenko teaches that this difference determines the optical fiber's effectiveness in conducting light. Optimizing a result-effective parameter known in the art does not impart patentable distinction to an invention. See MPEP 2144.05 [R-5] II, in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Ilvashenko does not specify an arithmetic mean roughness for the inner wall of the hollow tube. However, Nakahara teaches that roughness at the interface between the cladding and the sheathing of an optical fiber causes light scattering (col 1 ln 46-49), which diminishes the fiber's effectiveness. Therefore it would have been obvious to one of ordinary skill in the art to minimize the roughness of the inner wall of the hollow preform taught by Ilvashenko because Nakahara teaches that such roughness causes scattering of light.

Regarding claim 2, Ilvashenko teaches that the hollow tube is fabricated by melt extrusion molding (col 2 ln 43-44).

Regarding claim 3, Ilvashenko teaches that the hollow tube is composed of a homopolymer or copolymer of a fluorine-containing monomer (2,2,2-trifluoroethyl methacrylate, col 5 ln 3, 16).

Regarding claim 4, Ilvashenko teaches using the same material both to form the hollow tube and to form the core (col 8 ln 37-38). Ilvashenko does not teach using forming an outer core layer on the preform before charging it with the core monomer when different compositions are used. However, Nakahara teaches laying protective layers of the same substance on each surface so that the core and cladding layers do not disturb each other when they come into contact (col 2 ln 1-9). Therefore it would have been obvious to one of ordinary skill in the art to coat the inside of the hollow preform with core monomer in the method taught by Ilvashenko because Nakahara teaches adding intermediate layers to protect the core and cladding when the two are joined.

Regarding claim 6, Ilvashenko teaches that the core portion has a matrix composed of an acrylic resin having an acyclic hydrocarbon group as a side chain (PMMA, col 5 ln 3, 12, col 7 ln 35-3-7).

Regarding claim 7, Ilvashenko teaches a preform (fig 1) for producing a plastic optical component comprising a graded-index core portion and a cladding portion in which the refractive index of the core portion continuously decreases from its center to the outer radius (col 1 ln 28-33), the preform being made by fabricating a polymer hollow tube (col 2 ln 18-19) for the cladding portion and then polymerizing a polymerizable composition in the hollow portion of the hollow tube to thereby form the core portion (col 2 ln 23-27).

Ilvashenko does not specify that the refractive index of the cladding portion is smaller than that of the center of the core portion by 0.03 or more. However, Ilvashenko

establishes the difference in refractive indices as a result effective parameter by teaching that that value determines how well the optical material conducts light (col 7 ln 24-25). Therefore it would have been obvious to one of ordinary skill in the art to optimize the difference in the refractive indices between the core and the preform disclosed by Ilvashenko because Ilvashenko teaches that this difference determines the optical fiber's effectiveness in conducting light. Optimizing a result-effective parameter known in the art does not impart patentable distinction to an invention. See MPEP 2144.05 [R-5] II, in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Ilvashenko does not specify an arithmetic mean roughness for the inner wall of the hollow tube. However, Nakahara teaches that roughness at the interface between the cladding and the sheathing of an optical fiber causes light scattering (col 1 ln 46-49), which diminishes the fiber's effectiveness. Therefore it would have been obvious to one of ordinary skill in the art to minimize the roughness of the inner wall of the hollow preform taught by Ilvashenko because Nakahara teaches that such roughness causes scattering of light.

The product taught by Ilvashenko and Nakahara and the instantly claimed product appear to be essentially the same, comprised of the same components, and used in the same manner.

In the event any differences can be shown for the product of the product-by-process claim 7 as opposed to the product taught by the prior art, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results. See *In re Thorpe*, 227

USPQ 964 (Fed. Cir. 1985). Also, when the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process of making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

Regarding claim 8, Ilvashenko teaches stretching the preform with heat to form an optical fiber (col 2 ln 58-59). Ilvashenko does not specify the factor by which the preform is stretched. However, that factor is a result effective parameter because it the thickness of the cladding affects the fiber's mechanical and optical qualities. Therefore it would have been obvious to one of ordinary skill in the art to optimize the heat stretching factor in the method disclosed by Ilvashenko because the thickness of the cladding affects the optical fiber's mechanical and optical qualities. Optimizing a result-effective parameter known in the art does not impart patentable distinction to an invention. See MPEP 2144.05 [R-5] II, in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 9, Ilvashenko teaches an optical fiber formed by stretching the preform under heat (col 2 ln 58-59). Ilvashenko does not specify the factor by which the preform has been stretched to make the product. However, that factor is a result effective parameter because it the thickness of the cladding affects the fiber's mechanical and optical qualities. Therefore it would have been obvious to one of ordinary skill in the art to optimize the heat stretching factor used to make the product disclosed by Ilvashenko because the thickness of the cladding affects the optical fiber's mechanical and optical qualities. Optimizing a result-effective parameter known in the

art does not impart patentable distinction to an invention. See MPEP 2144.05 [R-5] II, in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

The product taught by Ilvashenko and Nakahara and the instantly claimed product appear to be essentially the same, comprised of the same components, and used in the same manner.

In the event any differences can be shown for the product of the product-by-process claim 7 as opposed to the product taught by the prior art, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results. See *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985). Also, when the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process of making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

Regarding claim 10, Ilvashenko teaches a polymer hollow tube (fig 1 part 1) for an optical component. Ilvashenko does not specify arithmetic mean roughness of the tube's inner surface. However, Nakahara teaches that roughness at the interface between the cladding and the sheathing of an optical fiber causes light scattering (col 1 ln 46-49), which diminishes the fiber's effectiveness. Therefore it would have been obvious to one of ordinary skill in the art to minimize the roughness of the inner wall of the hollow preform taught by Ilvashenko because Nakahara teaches that such roughness causes scattering of light.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ilvashenko in view of Nakahara as applied to claim 1 above, and further in view of Chimura et al. (US 3,930,103), henceforth Chimura.

Ilvashenko does not teach the use of vinylidene fluoride. However, Ilvashenko teaches using polymethyl methacrylate (PMMA) to make either sheath or core (col 5 ln 3, 12, col 7 ln 35-3-7) and Chimura teaches combining a cladding of 60 to 80 mol % vinylidene fluoride (col 2 ln 20-27) with a core of PMMA to make an optical fiber with excellent properties (col 2 ln 18). Therefore it would have been obvious to one of ordinary skill in the art to use a hollow preform of at least 10 % vinylidene fluoride in the method taught by Ilvashenko because Chimura teaches that its combination with a PMMA core makes for excellent optical properties.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magali P. Théodore whose telephone number is (571) 270-3960. The examiner can normally be reached on Monday through Friday 9:00 a.m. to 5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina A. Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. P. T./
Examiner, Art Unit 1791
/Christina Johnson/
Supervisory Patent Examiner, Art Unit 1791